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THE ORIGINAL DESCRIPTIONS OF THE MEDITERRANEAN
CEPHALOPODS. I: SEPIOIDEA

"Some of our nomenclatural usage has been the result of ignorance, of vanity, obstinate insistence on following individual predilections ...

... biological nomenclature has to be an exact tool that will convey a precise meaning for persons in all generations."

J. Chester Bradley, 1961

Key words: nomenclature, taxonomy, Cephalopoda, Sepioidea, Mediterranean Sea.

Abstract

The original descriptions of sepoid taxa of the Mediterranean are given. Names dealt with herein are Sepiidae, *Sepia*, *S. officinalis*, *S. orbignyana*, *S. elegans*, Spirulidae, *Spirula* and *S. spirula*. The entry of each name, in addition to its description in the original language and the English translation, includes information and comments on its authorship, publication date, validity, etc.

Riassunto

Le descrizioni originali dei Cefalopodi mediterranei. I: Sepioidea.

Sono riportate le descrizioni originali dei nomi dei taxa dei sepioidei mediterranei: famiglie Sepiidae e Spirulidae, generi *Sepia* e *Spirula*, specie *Sepia officinalis*, *S. orbignyana*, *S. elegans* e *Spirula spirula*. Per ciascun nome, in aggiunta alla descrizione in lingua originale, vengono forniti commenti ed informazioni sulla paternità, data di pubblicazione, validità, ecc.

Foreword

Some ten years ago, while preparing the "Catalogue of the Mediterranean Cephalopods" (BELLO, 1986), I found many problems of nomenclatural nature. It has been far easier to track down the list of the Mediterranean species than

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to solve the puzzles of proper spelling, authorship and publication date of the names of many taxa. In a few instances even the decisions of the International Commission of Zoological Nomenclature and the inclusion of names in the Official Lists (MELVILLE & SMITH, 1987) were habitually disregarded (e.g., the authorship of *Octopus vulgaris* ascribed to either Cuvier or Lamarck). The only way to settle the many questions concerning the Mediterranean cephalopod names was to examine their original descriptions, often published in obscure papers or in provincial journals. The accomplishment of that task has been spread over several years, during which I had a chance to visit several libraries in Europe and the USA.

Additionally, inspection of old literature revealed to me the ingenuity of our "teuthological forefathers" and inspired in me a profound respect for their work.

Introduction

The purposes of this paper are, first, to provide the original descriptions of the names of the Mediterranean cephalopod taxa (some 61 nominal species, 42 genera and 32 families and subfamilies; *cfr.* BELLO, 1986 and 1992), which are scattered in a vast array of items of literature, many of which are not readily available; second, to solve once and, hopefully, definitively the nomenclatural problems concerning the same taxa. The latter point is also in agreement with paragraph VI of the announcement of the fourth edition of the International Code of Zoological Nomenclature, planned to be issued in 1996 and to take formal effect on 1 January 1997: "Adoption of Lists of Available and Potentially Valid Names" (KRAUS & RIDE, 1995).

The naming of zoological taxa is governed by the Code under the control of the International Commission on Zoological Nomenclature (ICZN, 1985). However, the Code takes into account only taxa of the family level and below. In accordance with this, only the names of family, genus, and species level will be dealt with herein.

The Code (ICZN, 1985: art. 12a) states that "To be available every new scientific name [...] must have been accompanied by a description or a definition of the taxon that it denotes, or by an indication." The terms "description" and "definition" differ in meaning. Description is "a statement in words of taxonomic characters of a specimen or a taxon" (ICZN, 1985: Glossary, p. 253); and the original description is the description of a nominal taxon when it is established. Definition is "A statement in words that purports to give characters differentiating a taxon" (ICZN, 1985: Glossary, p. 253). A work in which a new taxon is established may give either its description or its definition or both. In general terms, the description is wider and more detailed than the definition. The term "original description" is usually employed to indicate a statement in words by which a nominal taxon is established, whether a description or a definition.

In this first paper the original descriptions of the taxa of the order

Sepioidea are given. The classification of Cephalopoda adopted by Voss (1977) represents a milestone in the history of the taxonomy of this class of molluscs, and has been followed by most workers all over the world. In the following years, however, the order Sepioidea *sensu* Voss, 1977 was deemed to be an unnatural assemblage of not closely related taxa (FIORONI, 1981; CLARKE, 1988; BOLETZKY, 1995). In accordance with such views, the order Sepioidea is herein considered *sensu strictu*, viz. limited to contain the families Sepiidae and Spirulidae (Spirulidae too seem not to be associated with Sepiidae; *cfr.* BONNAUD *et al.*, 1994). As for the Mediterranean species and, hence, related genera and families of Sepioidea to be dealt with herein, the Catalogue by BELLO (1986) and its Addenda (BELLO, 1992) have been followed.

Treatment of the original descriptions

The entry for each taxon includes the valid name accompanied by its author and publication date; the original spelling (and combination, for specific names); full reference to the work where the description was published; the description and/or definition in the original language; the translation into English of the above, as literally as possible, in braces {}; the derivation of the name (for generic and specific names); the gender (for generic names); the type locality (for species); the name-bearing type; the list of other genera and species originally included in the family and genus, respectively; notes, comments, and additional information, under the heading "Notes".

The use of original typographical characters has been retained, as far as possible, in reporting quotations. Interpolations by the present author are in square brackets [].

The Opinions and Directions of the International Commission on Zoological Nomenclature are quoted as "O." and "Dir.", followed by their number.

Family Sepiidae Leach, 1817

Original spelling: Sepiidea.

Work: W.E. LEACH, 1817 - *Synopsis of the Orders, Families, and Genera of the Class Cephalopoda. Zoological Miscellany*, 3 (30): 137-141.

Definition: (in "Ordo II. Decapoda"; family II; p. 138)

"Corpus elongatum postice acuminatum: Pinnae apice coalitae: Collum liberum. Pedes inaequales: par superum brevis: paria 2 et 3 gradatim longiora; par 5 pari 2 paulo longius. Os depressum."

{Body slender posteriorly pointed. Fins fused at the rear. Neck free. Feet unequal: the upper pair shorter: the 2nd and the 3rd pairs gradually longer; the 5th pair slightly longer than the 2nd pair. Bone flat.}

Type genus: *Sepia* (*Sepi-a* → *Sepi-idea*, as the original spelling; → *Sepiidae*, corrected).

Other genera originally included in the family: *Loligo*.

Notes: LEACH (1817) subdivided the Cephalopoda into the orders Octopoda and Decapoda, which he defined quite adequately. The latter order was in turn subdivided into the families "Sepiolidea" (including the genera *Sepiola* and *Cranchia*) and "Sepiidea". The definition of Sepiidea, given above, is rather vague by present standards, since it refers to genera differing to a great extent from each other.

The flat bone (= *os depressum*) referred to in the definition is both the cuttlebone of cuttlefish and the gladius of squids.

Many authors mistakenly ascribe this family to KEFERSTEIN, 1866 (e.g. NAEF, 1923: 519), because he placed in his "Sepiadae" only the genus *Sepia* of living genera. KEFERSTEIN (1866), indeed, in defining the Sepiidae, had followed the opinion of former authors. Incidentally, it appears that NAEF (1923), whose opinion is followed by many modern authors in attributing the authorship of Sepiidae to Keferstein, 1866, did not have very clear ideas about the authorship of Sepiidae; he reports at p. 49 "Sepiidae Orb. [= d'Orbigny], 1845."

Genus *Sepia* Linnaeus, 1758

Original spelling: *Sepia*.

Work: C. LINNAEUS, [1 January] 1758 - *Systema Naturæ*, Tomus I, Editio Decima, Reformata, Impensis Direct. Laurentii Salvii, Holmiæ: 823 pp.

Definition: (in "GENERUM Characteres"; genus no. 262; p. 644)

"*Corpus* natans, carnosum, ore supra cinto brachiis 6."

{Body swimming, fleshy, with the mouth up surrounded by 6 arms.}

Description: (p. 658)

"*Brachia* sex interius adpersa cotyledonibus (præter 2 Tentacula longiora quibusdam).

Os inter brachia, terminale.

Oculi ? infra tentacula versus corpus.

Corpus vagina excipiens pectus."

{Six *arms* scattered with suckers on the innermost part (in addition 2 longer tentacles [scattered] with some [suckers]). *Mouth* among the arms, terminal. *Eyes* ? under the tentacles towards the body. *Body* sheath-shaped putting forth the breast.}

Derivation of name: from the Latin *sepes* = six-footed.

Gender: feminine.

Type species: *Sepia officinalis* Linnaeus, 1758 (by Linnaean tautonomy).

Other species originally included in the genus: *Octopodia*, *media*, *Loligo*, *Sepiola*.

Notes: The date of publication of the 10th edition of "*Systema Naturæ*" is conventionally fixed as 1 January 1758 (ICZN, 1985: Art. 3).

LINNAEUS (1758) included all cephalopods in class VI, Vermes. The genus *Sepia* was placed in the order Mollusca, and *Argonauta* and *Nautilus* (which includes the present day genera *Nautilus* and *Spirula*) in the order Testacea. Only the species *Sepia officinalis* and *Sepia* (= *Alloteuthis*) *media*, out of the five species within the genus *Sepia*, are considered valid today. It may be helpful to point out that the Linnaean names "*Loligo*" and "*Sepiola*" are specific epithets and are not to be confused with the homonymous genera.

Both the definition and description of *Sepia* by LINNAEUS (1758) quote the presence of six arms around the mouth (instead of eight), which is in agreement with the etymon of *Sepia*. This name has been extensively used since ancient times to indicate *Sepia officinalis*. Linnaeus' mistake is remarkable, especially in view of the placement in the genus *Sepia* of the species *octopodia*, the name of which clearly indicates the presence of eight arms. See also ROBSON (1929: 56).

LAMARCK (1798: 129) restricted the meaning of *Sepia*, providing the following definition: "Corps charnu, déprimé, contenu dans un sac ailé de chaque côté dans toute sa longueur, et renfermant vers le dos, un os spongieux presque friable et opaque. Bouche terminale, entourée de 10 bras qui couronnant la tête, sont garnis de ventouses verruciformes, et dont deux sont pédunculés et plus longs que les autres." LAMARCK (1798: 130) also stated "Ce caractère réduit considérablement le genre *sepia* de Linné."

Sepia Linnaeus, 1758 is the type genus of the family Sepiidae Leach, 1817.

Sepia Linnaeus, 1758 is placed on the Official List of Generic Names in Zoology, type species by Linnaean tautonomy: *Sepia officinalis* Linnaeus, 1758 (O. 94).

Species *Sepia officinalis* Linnaeus, 1758

Original spelling and combination: *Sepia officinalis*.

Work: C. LINNAEUS, [1 January] 1758 - *Systema Naturæ*, Tomus I, Editio Decima, Reformata, Impensis Direct. Laurentii Salvii, Holmiae: 823 pp.

Definition: (in the genus *Sepia*; species no. 2; p. 658)

"S. corpore ecaudato marginato, tentaculis duobus."

{S. (=Sepia) with the body bordered [by fins] from the tail; with two tentacles.}

Derivation of name : from the Latin *officina*, in the sense of pharmacy (*officinalis* = of a *officina*).

Type locality: "*Habitat in Oceano*" {It lives in the Ocean} (p. 658).

Type specimen: in the "Adolphi Friderici Regis Museum" Museum of Adolphus Fridericus King of Sweden (Catalogue of the Museum, vol. I, p. 93) (p. 658).

Notes: As to the publication date of *Systema Naturae*, see the note to the genus *Sepia*.

The treatment of the species includes the following words: "Continet os officinale & atramentum quo se occultat; eo litteræ pinguntur. Congros ejus brachia rodere, sed renasci, sicut Lacertis caudam, haud falsum. Plin. IX: 29." {It contains the officinal bone and the black substance [= ink] by which it hides; with it letters are painted. Not quite false that conger-eel gnaw its arms, but they regrow, like the tail of lizards. Plin. [= Pliny] IX: 29.}

In this case as well, LINNAEUS' description is too scanty to warrant the identification of the species. The character "corpore ecaudato marginato", i.e. body [=mantle] thoroughly bordered by narrow fins, provides a safe indication of cuttlefish (genus *Sepia*). References to older authors and to the medical use, however, remove any doubts about the species dealt with by LINNAEUS.

Sepia officinalis LINNAEUS, 1758 is the type species of the genus *Sepia* by Linnaean tautonomy (O. 94; Dir. 72).

Sepia officinalis Linnaeus, 1758 is placed on the Official List of Specific Names in Zoology (Dir. 73).

Species *Sepia orbignyana* Férussac in d'Orbigny, 1826

Original spelling and combination: *Sepia Orbigniana*.

Work: A.D. D'ORBIGNY, 1826 - Tableau méthodique de la classe des Céphalopodes. *Annales des Sciences naturelles*, 7: 96-169.

Description: (in the genus *Sepia*; species no. 4; under the heading "*Animal inconnu*"; p. 156)

"*S. Orbigniana*, Nob. - *Hab.* les côtes de France, près la Rochelle. MM. d'Orbigny nous ont communiqué la pièce interne d'une Seiche tout-à-fait distincte de celle de l'espèce vulgaire: elle est beaucoup plus petite, ayant seulement trois ou quatre pouces de long, étroite à proportion, d'une couleur rosée, et munie d'une pointe allongée, aigüe, relevée en dessus, etc."

{Messrs. d'Orbigny have communicated us the internal piece of a cuttlefish completely distinct from that of the common species [i.e. *Sepia officinalis*]: it is much smaller, only being three or four inches long [1 French

'pouce' = 27.07 mm], proportionately narrow, roseate in colour, and equipped with an extended, sharp, raised above point.}

Derivation of name: from the personal name Orbigny.

Type locality: "*Hab.* les côtes de France, près la Rochelle". It inhabits the coasts of France, near la Rochelle [North-eastern Atlantic Ocean] (p. 156).

Type specimen: Its position is not stated by the Author. According to DE BLAINVILLE (1827b: 20), it was kept in the collection of Charles-Marie Dessalines d'Orbigny, father of Alcides Dessalines (the teuthologist), at La Rochelle: "Nous [*i.e.* de Blainville] avons vu ce sépiostaire dans la collection de M. d'Orbigny, le père, à La Rochelle, ..." {We [*i.e.* de Blainville] have seen this cuttlebone in the collection of M. d'Orbigny, the father, at La Rochelle, ...}

Notes: The original spelling *orbigniana* was emended by D'ORBIGNY (*in* FÉRUSSAC & D'ORBIGNY, 1834-48) as *orbignyana*, which is the spelling currently used. An application has been presented to the International Commission on Zoological Nomenclature to conserve *orbignyana* as the correct original spelling (BELLO & MINELLI, *in press*).

Most of the work by D'ORBIGNY (1826), in terms of pages, is due to Férussac. The latter author wrote the introduction (pp. 96-120), as stated by the phrase below the title (p. 96) "précédé d'une introduction par M. de Férussac" and as shown by internal evidences (for instance, the Author mentions several times himself, "nous", and "M. d'Orbigny" as two distinct persons). Férussac is also the author of the whole part concerning the "Cryptodibranches" (= cephalopods without shell or with unilocular shell, *i.e.* all coleoids except the genus *Spirula*) (pp. 134-157); in addition, his authorship is clearly stated by d'Orbigny at p. 130: "Nous [*i.e.* d'Orbigny] devons à M. de Férussac toute la partie de notre Prodrôme qui concerne cet ordre [*i.e.* Cryptodibranches]." A last evidence of Férussac's authorship of *Sepia orbignyana* is in the description of the new species itself: "MM. d'Orbigny nous ont communiqué la pièce interne d'une Seiche ..." and in the naming of the taxon after the persons who collected and showed the specimen to Férussac.

According to DE BLAINVILLE (1827b: 20), it was not clear whether the author of the species was Férussac or d'Orbigny: "Cette espèce a été indiqué, pour la première fois, par M. de Férussac ou pour M. d'Orbigny, le fils, dans son tableau systématique de la classe des Céphalopodes."

The species was named after d'Orbigny. Most probably Férussac meant to dedicate it to both d'Orbigny the father, Charles-Marie Dessalines, and d'Orbigny the son, Alcides Dessalines. The former (1770-1856) was surgeon and naturalist (geologist and palaeontologist); the latter (1802-1857) was the famed naturalist, who co-operated with Férussac in several works, including the "Tableau méthodique" (D'ORBIGNY, 1826).

The description of the species is quite poor. The only character that

distinguishes its cuttlebone from that of *Sepia officinalis* is the "pointe allongée", although the length of the long point is not stated. However, the type specimen, kept in the collection of d'Orbigny the father at La Rochelle, and further description by DE BLAINVILLE (1827b) (who referred to such a specimen) and by D'ORBIGNY the son (*in* FÉRUSAC & D'ORBIGNY, 1834-48) helped in distinguishing the species from the remaining two north-eastern Atlantic and Mediterranean cuttlefishes.

Species *Sepia elegans* de Blainville, 1827

Original spelling and combination: *Sepia elegans*.

Work: H.D. DE BLAINVILLE, 1827 - Sèche. *Dictionnaire des Sciences Naturelles*. F.G. Levrault Editeur, Strasbourg et Paris. Vol. 48: 257-293.

Description: (pp. 284-285)

"La S. ÉLÉGANTE; *S. elegans*. Corps ovale, déprimé, terminé en arrière par une très-petite pointe médiane, formée par la saillie du sépiostaire; membrane marginale ou nageoire plus étroite en avant, s'élargissant en arrière et se terminant sans se réunir à celle du côté opposé. Appendices tentaculaires décroissant de la paire supérieure à l'inférieure, qui est la plus forte et la plus grande, avec quatre rangées de ventouses pédiculées; appendices brachiaux d'un cinquième plus longs que le corps et la tête pris ensemble. Tout le dessus du corps, de la tête et des tentacules, d'un brun bleuâtre; le dessous d'un blanc sale, piqueté de rouge, violet sur les côtes.

Cette jolie espèce [...] est bien distincte de la sèche ordinaire, d'abord par les caractères comparatifs que je lui assigne, et par sa taille, qui ne paroît pas dépasser six pouces de long."

{Body oval, flat, the rear end with a very small median point, formed by the ridge of the cuttlebone; marginal membrane or fin narrower on the front, becomes larger on the back and terminates without joining with that of the opposite side. Tentacular appendages [= arms, indeed] decreasing [sic!] from the upper [= 1st] to the lower [= 4th] pair, which is the strongest and largest one, with four ranges of stalked suckers; brachial appendages [= tentacles, indeed] about one fifth longer than the body and head together. The whole upper side of the body, head, and tentacles bluish brown; the underside opaque white, speckled with red, violet on the sides.

This graceful species [...] is distinct from the common cuttlefish [*i.e.* *Sepia officinalis*], first of all because of the comparative characteristics that I assign it, and because of its size, which does not appear to exceed six inches [1 French inch = 27.07 mm of length].}

Derivation of name : from the French *élégante* (= elegant), referring to the general aspect of the species.

Type locality: "mers de Sicile" {Seas of Sicily [western Mediterranean] (p. 285).}

Type specimen: in the personal collection of the Author; he reports "Cette jolie espèce [...] dont nous possédons plusieurs individus ..." {This graceful species [...] of which we possess several individuals...} (DE BLAINVILLE, 1827a: 285).

Notes: The description of *Sepia elegans* by de Blainville is rather long and complete; it takes into account both the shell and the fleshy parts of the animal. The reference to the very small rear tip, due to the ridge ("saillie") in the cuttlebone, distinguishes this species from the other Mediterranean species (NAEF, 1923: Fig. 315; BELLO, 1991: Figs. 5 to 7). It is noteworthy that the Author refers to the arms as "appendices tentaculaires" and to the tentacles as "appendices brachiaux". Furthermore, the statement that the arms are "decreasing from the upper to the lower pair, which is the strongest and largest one" is clearly self-contradictory and is most probably due to a printing mistake; in a subsequent work (DE BLAINVILLE, 1827b: 19) he refers to the same description, but the word "décroissant" (= decreasing) is replaced by "croissant" (= increasing); in fact, the arm formula of *Sepia elegans* is $4 > 3 > 2 > 1$ (NAEF, 1923).

Several authors have attributed the authorship of this species to d'Orbigny (e.g. JATTA, 1896; NAEF, 1923; MANGOLD-WIRZ, 1963; NESIS, 1987); however the species is now correctly ascribed to de Blainville, 1827. The erroneous attribution to d'Orbigny is explained by d'Orbigny's own statement (FÉRUSAC & D'ORBIGNY, 1834-48: 280), according to which the plate depicting the cuttlefish in question and bearing the caption "*S. elegans* d'Orbigny" (plate 8 of the genus *Sepia*) was issued in 1826. Although several plates by d'Orbigny were actually ready by May 1826 (cfr. FÉRUSAC & D'ORBIGNY, 1834-48: Introduction; WINCKWORTH, 1942) most probably including plate 8 of *Sepia*, that plate was issued in March 1835 (TILLIER & BOUCHER-RODONI, 1993). Hence, the first author to publish the description and the name *Sepia elegans* was de Blainville in 1827.

It is curious that one species was given the same name by two different authors. Taking into consideration that d'Orbigny's plates may have been privately circulated before issue (d'Orbigny left France in May 1826 for an eight-year-long voyage) it is possible that DE BLAINVILLE (1827a) used for this species, which he independently knew and described, the name *Sepia elegans* which had already become somewhat formalised. However, de Blainville was aware that the authorship of this species was his own: in a subsequent work (DE BLAINVILLE, 1827b: 19) he reported "*Sepia elegans*, de Blainv. Monographie, Dic. des Sc. Nat., t. LXVIII [sic!], pag. 44."

Family **Spirulidae** Rafinesque, 1815

Original spelling: Spirularia.

Work: C.S. RAFINESQUE-SCHMALTZ, 1815 - *Analyse de la nature, ou tableau de l'univers et des corps organisés*. Palerme: 224 pp.

Definition: (in "Tableau des familles et des genres"; Order "Cephalopodia", sub-order "Polarnaxia", family no. 5; p. 140)

"SPIRULARIA. Les *Spirulaires*. Test externe en spirale libre ou sans spire, tentacules souvent déterminés."

{Shell external with a free coil or no coil, tentacles often determinate [as opposite to numerous].}

Type genus: *Spirula* (*Spirul-a* A→E *Spirul-aria*, as the original spelling; A→E *Spirul-idae*, corrected).

Other genera originally included in the family: *Spironites*, *Lituolites*, *Belemnita*, *Closterita*, *Ropalita*, *Campytus*, *Pachynus*, *Hippurites*, *Cornucopia*, *Orthocera*, *Oblicitus*, *Oblongites*.

Notes: The authorship of the family Spirulidae is currently attributed to Owen, 1836 (Voss, 1977 and subsequent authors), who placed in this family the genus *Spirula* only, which corresponds to present day knowledge. Indeed, before OWEN (1836), D'ORBIGNY (1826: table in front at p. 116) had already restricted his family "Spirulées" to the genus *Spirula*, defining the family quite satisfactorily for his time standards (D'ORBIGNY, 1826: 157-158): "*Caract. essent.* ANIMAL. Huit bras sessiles, et deux bras pédoncolés entourant la bouche et garnis de ventouses, les deux derniers se repliant dans le sac. Test simple, spiral; cavité supérieure à la dernière cloison presque nulle; cloisons unies; siphon au bord intérieur. Genre unique. - SPIRULE, *Spirula* Lam.; *Nautilus*, Linn. ..." Nevertheless, RAFINESQUE'S (1815) family "Spirularia" satisfies the provisions of the Article 11f of the ICZN (1985). Hence, following the mandatory correction of the incorrectly formed suffix "-aria" (ICZN, 1985: Article 32c,d), Spirulidae Rafinesque, 1815 is the name to be used to indicate this family.

The definition given by RAFINESQUE (1815) is rather poor. The shell is not actually external. Furthermore, the genera assembled in the family are too different. It has to be remembered, however, that Rafinesque's is one of the very first attempts to put order among all the known cephalopods, after LINNAEUS' (1758) misunderstanding of the taxon Cephalopoda and CUVIER'S (1797) appropriate arrangement of the Mollusca.

Spirulidae is a monotypical family.

Spirula Lamarck, 1799 is the type genus of the family Spirulidae Rafinesque, 1815.

Genus *Spirula* Lamarck, 1799

Original spelling: *Spirula*.

Work: J.-B. LAMARCK, Prairial an 7 [1799] - Prodrome d'une nouvelle classification des coquilles comprenant une rédaction appropriée des caractères génériques, et l'établissement d'un grand nombre de genres nouveaux. *Mémoires de la Société d'Histoire Naturelle de Paris*, 1: 63-91; 1 table.

Description: (in "Coquilles multiloculaires"; p. 80)

"SPIRULE. *Spirule*.

Coq. partiellement ou complètement en spirale, et dont au moins le dernier tour est séparé; loges transverses, simples, dont le disque est percé par un tube.

Nautilus spirula. Lin."

{Shell in part or completely coiled, and of which at least the last round is separate; chambers transverse, simple, the disk of which is perforated by a tube.}

Derivation of name: diminutive of the Latin *spira* = coil (*spirula* = little coil).

Gender: feminine

Type species: *Nautilus spirula* Linnaeus, 1758 (by monotypy).

Other species originally included in the genus: none.

Notes: The publication date printed on the title page is "PRAIRIAL AN VII", which month extended from the 20th of May to the 18th of June 1799. Hence, the official publication date of the genus *Spirula* is the 18th of June 1799 (ICZN, 1985: Art. 21c).

Spirula is listed among the "Coquilles multiloculaires", along with *Nautilus*, *Ammonites* and other genera.

It is noteworthy that Lamarck's description refers just to the shell, thoroughly disregarding the animal body. However, it is sufficient to discriminate this genus.

Several authors (*e.g.* Voss, 1977) report an erroneous publication date of the genus *Spirula* (attributing it to Lamarck, though), *i.e.* 1801. The work by LAMARCK (1801) which modern authors refer to, reports indeed a revision of the genus *Spirula*, where the species *Spirula spirula* was renamed *Spirula fragilis* (the latter specific name was placed on the Official Index of Rejected and Invalid Specific Names in Zoology; O. 315). The correct publication date

of *Spirula* Lamarck is 1799, as confirmed also by the ICZN (O. 315; see further below).

The genus *Spirula* is monotypic.

Spirula Lamarck, 1799 is the type genus of the family Spirulidae Rafinesque, 1815.

Spirula is placed on the Official List of Generic Names in Zoology, type species by monotypy: *Nautilus spirula* Linnaeus, 1758 (O. 315).

Species *Spirula spirula* (Linnaeus, 1758)

Original spelling and combination: *Nautilus Spirula*.

Work: C. LINNAEUS, [1 January] 1758 - *Systema Naturae*, Tomus I, Editio Decima, Reformata, Impensis Direct. Laurentii Salvii, Holmiæ: 823 pp.

Definition: (in the genus "*Nautilus Spirales rotundati*"; species no. 239 of "*Vermes, Testacea*"; p. 710)

"N. [= *Nautilus*] testæ apertura orbiculari, anfractibus disjunctis cylindricis."

{*Nautilus* with the shell opening round, with separate loops cylindrical.}

Derivation of name: diminutive of the Latin *spira* = coil (*spirula* = little coil).

Type locality: "*Habitat in America*" {It lives in America} (p. 710).

Type specimen: not reported.

Notes: As to the publication date of *Systema Naturae*, 10th edition, see the note to the genus *Sepia*.

The description of the species *spirula* is too concise, as usual with Linnaeus. Nevertheless, subsequent references to Linnaeus by later authors (e.g. LAMARCK, 1799) offer evidence of the species dealt with by Linnaeus.

In defining this species, LINNAEUS (1758) referred solely to the shell, as LAMARCK (1799) did later for the genus *Spirula*.

As for the genus *Nautilus*, wherein the species *spirula* was originally placed, LINNAEUS (1758: 709) wrote "*Animal Sepia? Testa univalvis, isthmis perforatis concamerata, polythalamia*." In the group of "*NAUTILUS Spirales rotundati*" LINNAEUS (1758: 709-710) placed the following species, in addition to *spirula*: *Pompilius*, *Crista*, *Calcar*, *crispus*, *Beccarii*, *umbilicatus*; all of them are "anfractibus contiguus" (= with contiguous loops) in contrast to the separate loops of *spirula*.

Nautilus spirula Linnaeus, 1758 is the type species, by monotypy, of the genus *Spirula* Lamarck, 1799 (O. 315).

Spirula spirula (Linnaeus, 1758) is placed on the Official List of Specific Names in Zoology (O. 315).

Conclusions

The eight taxa dealt with in this paper were described between 1758, the year marking the birth of modern taxonomy, and 1827. All of them are now well established taxa, despite their rather concise and sometimes vague descriptions. In this regard the mistakes by LINNAEUS (1758) in describing the genus *Sepia* and by DE BLAINVILLE (1827a) in describing *Sepia elegans* are noteworthy (*cfr.* the notes to those taxa).

The descriptions herein reported, indeed, reflect the unregulated situation at the dawn of modern taxonomy. In several instances, original names were casually "emended" to comply with the personal views of the emendator, as in the case of *Sepia orbignyana* (*cfr.* the relevant notes). In other instances, one taxon was independently described and given the same name by two or more authors (*cfr.* the notes to *Sepia elegans*), which is indicative of possible unethical conduct. The suffix for family names as known today, i.e. "-idae", had not then been universally agreed. Most importantly, because of the primitive state of cephalopod systematics in the first few decades of the XIX Century, the arrangement of genera in families was fluctuating in accordance with the opinion of different authors. This fact has caused some uncertainty, up to the present time, as to the authorship of a few old established family names; such is the case of both family names discussed in the present paper (*cfr.* the notes to Sepiidae and Spirulidae). Finally, it may be noted that the concept of name-bearing type had not yet evolved by the time the taxa dealt with herein were described.

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BIBLIOGRAPHY

- BELLO G., 1986 - Catalogo dei Molluschi Cefalopodi viventi nel Mediterraneo. *Boll. Malacol.*, Milano; **22**: 197-214.
- BELLO G., 1991 - Guida all'identificazione delle conchiglie dei Cefalopodi del Mediterraneo. *Boll. Malacol.*, Milano; **26**: 157-164.
- BELLO G., 1992 - Addenda al Catalogo dei Molluschi Cefalopodi viventi nel Mediterraneo. *Boll. Malacol.*, Milano; **28**: 93-95.
- BELLO G. & A. MINELLI, in press - *Sepia orbignyana* Férussac in d'Orbigny, 1826 (Mollusca, Cephalopoda): proposed conservation of *orbignyana* as the correct original spelling of the specific name. *Bull. Zool. Nomencl.*, London.
- BLAINVILLE H. D. DE, 1827a - Sèche. *Dictionnaire des Sciences Naturelles*. F.G. Levrault Editeur, Strasbourg et Paris; vol. 48: 257-293.
- BLAINVILLE H. D. DE, 1827b - Malacozoaires. Classe I^{re}, Céphalophores. Ordre I^{er}, Cryptodibranches. *Faune française*, 18^e livraison: 1-20.
- BOLETZKY S. V., 1995 - The systematic position of the Sepiolidae (Mollusca: Cephalopoda). *Bull. Inst. Océanogr.*, Monaco; n. spéc. **16**: 99-104.
- BONNAUD L., R. BOUCHER-RODONI & M. MONNEROT, 1994 - Phylogeny of decapod Cephalopods based on partial 16S rDNA nucleotide sequences. *C. R. Acad. Sci. Paris, Sciences de la Vie*, Paris; **317**: 581-588.
- CLARKE M. R., 1988 - Evolution of Recent Cephalopods - A Brief Review. In M.R. Clarke & E.R. Trueman (Eds.), *Paleontology and Neontology of Cephalopods. The Mollusca*; **12**: Academic Press, London & New York: 331-340.
- CUVIER G., [1797] - *Tableau élémentaire de l'histoire naturelle des animaux*. Baudouin, Paris; xvi + 710 pp.; 14 pls.
- FÉRUSSAC A. DE & A.D. d'ORBIGNY, 1834-48 - *Histoire naturelle générale et particulière des Céphalopodes Acétabulifères vivants et fossiles*. J.-B. Baillière, Paris, vol. 1, text, 366 pp.; vol. 2, atlas; 144 plts.
- FIORONI P., 1981 - Die Sonderstellung der Sepioliden, ein Vergleich der Ordnungen der rezenten Cephalopoden. *Zool. Jb. Syst.*; **108**: 178-228.
- INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE, 1985 - *International Code of Zoological Nomenclature, third edition*. International Trust for Zoological Nomenclature, London: xx + 338 pp.
- JATTA G., 1896 - *I Cefalopodi*. Fauna Flora Golf Neapel, Berlin; 23: xi + 268 pp.; 31 plts.
- KEFERSTEIN W., 1862-66 - *Kopftragenden Weichthiere (Malacozoa cephalophora)*. In H.G. Bronn & W. Kefersteine, *Die Klassen und Ordnungen des Thier-Reichs, wissenschaftlich dargestellt in Wort und Bild*. Vol. 3, part 2. C.F. Winter'sche Verlagshandlung, Leipzig und Heidelberg: 1307-1464.
- KRAUS O. & W.D.L. RIDE, 1995 - Discussion Draft of the Fourth Edition of the *International Code of Zoological Nomenclature*. *Bull. Zool. Nomencl.*, London; **52**: 121-125.
- LAMARCK J.-B., [1798] - Mémoire sur le genre de la Sèche, du Calmar et du Poulpe, vulgairement nommés, *Polypes de Mer*. *Bull. Sci. Soc. Philom.*, Paris; **2**: 129-131.
- LAMARCK J.-B., [1799] - Prodrôme d'une nouvelle classification des coquilles. *Mém. Soc. Hist. Nat.* Paris; **1**: 63-91, 1 table.
- LAMARCK J.-B., 1801 - *Système des animaux sans vertèbres*. Paris.

- LEACH W. E., 1817 - Synopsis of the Orders, Families, and Genera of the Class Cephalopoda. *Zool. Misc.*; **3** (30): 137-141.
- LINNAEUS C., 1758 - *Systema Naturae*, Tomus I, Editio Decima, Reformata, Impensis Direct. Laurentii Salvii, Holmiae: 823 pp.
- MANGOLD-WIRZ K., 1963 - Biologie des Céphalopodes benthiques et nectoniques de la Mer Catalane. *Vie Milieu*, Banyuls-sur-Mer; suppl.; **13**: 1-283, 4 pls, 1 map.
- MELVILLE R.V. & J.D.D. SMITH, 1987 - *Official Lists and Indexes of Names and Works in Zoology*. International Trust for Zoological Nomenclature, London: 366 pp.
- NAEF A., 1923 - Die Cephalopoden. Fauna Flora Golf Neapel, Berlin; 35 (1,1): i-xii, 1-863, 19 pls.
- NESIS K.N., 1987 - *Cephalopods of the world*. T.F.H. Publications Inc. Neptune City, NJ: 351 pp.
- ORBIGNY A. D. d', 1826 - Tableau méthodique de la classe des Céphalopodes. *Ann. Sci. Nat.*, Paris; **7**: 96-169.
- OWEN R., 1836 - Description of some new and rare Cephalopoda. *Trans. Zool. Soc. London*; **2**: 103-130.
- RAFINESQUE-SCHMALTZ C. S., 1815 - *Analyse de la nature, ou tableau de l'univers et des corps organisés*. Palerme: 224 pp.
- ROBSON G. C., 1929 - *A monograph of the recent Cephalopoda*. British Museum (Natural History), London: xi + 236 pp.; 7 pls.
- TILLIER A. & R. BOUCHER-RODONI, 1993 - Férussac and d'Orbigny's "*Histoire naturelle générale et particulière des Céphalopodes acétabulifères*": Dates of Publication of Plates and Text. *Nautilus*; **107**: 97-103.
- VOSS G. L., 1977 - Classification of Recent Cephalopods. *Symp. Zool. Soc. London*; **38**: 575-579.
- WINCKWORTH R., 1942 - Notes on the publication of Férussac and Orbigny's *Histoire des Céphalopodes*. *Proc. Malacol. Soc.*, London; **25**: 34-36.

Appendix

Opinions and Directions quoted in the present paper.

- Opinion 94: Twenty-Two Mollusk and Tunicate Names Placed in the Official List of Generic Names. *Smithsonian Miscellaneous Collections*, 73: 348-349. [1926]
- Opinion 315: Addition of the generic name *Spirula* Lamarck, 1799 (Class Cephalopoda) to the *Official List of Generic Names in Zoology*. *Opinions and Declarations rendered by the International Commission on Zoological Nomenclature*, 9(4): 81-90. [1954]
- Direction 72: Completion and in certain cases correction of entries relating to the names of genera of the phyla Mollusca, Brachiopoda, Echinodermata and Chordata made on the *Official List of Generic Names in Zoology* by rulings given in *Opinions* rendered in the period up to the end on 1936. *Opinions and Declarations rendered by the International Commission on Zoological Nomenclature*, 1E(11): 163-192. [1957]
- Direction 73: Addition to the *Official List of Specific Names in Zoology* (a) of the specific names of twenty-five species of the phyla Mollusca, Brachiopoda, Echinodermata and Chordata, each of which is the type species of a genus, the name of which was placed on the *Official List of Generic Names in Zoology* in the period up to the end on 1936 and (b) of the specific names of three species belonging respectively to the phyla Brachiopoda, Echinodermata and Chordata, each of which is currently treated by some or all specialists as a senior subjective synonym of the name of such a species. *Opinions and Declarations rendered by the International Commission on Zoological Nomenclature*, 1E(11): 195-214. [1957]